

REMARKS

The present application was filed on February 28, 2002 with claims 1-18. Claims 4, 10 and 15 were canceled by Applicants in their previous response filed April 16, 2003.

In this response, Applicants have canceled claims 2, 9, 13 and 18, and have amended claims 1, 3, 12 and 14.

Claims 1, 3, 5-8, 11, 12, 14, 16 and 17 remain pending after the foregoing amendments. Claims 1 and 12 are the independent claims.

Applicants respectfully request reconsideration of the present application in view of the above amendments and the following remarks.

The Examiner has rejected claims 1-3, 5-9, 11-14 and 16-18 under 35 U.S.C. §112, second paragraph, as being allegedly indefinite, vague and confusing for failing to specifically recite optical coupling or physical coupling in claims 1 and 12 when stating that an optical fiber lasing medium is "coupled between the first and second reflective devices."

Applicants respectfully traverse the §112 rejection. Applicants submit that the term "coupled" as used in claims 1 and 12 is sufficiently clear to satisfy the requirements of §112, second paragraph. Applicants are not required to specify optical, physical or any other specific type of coupling in their claim, and choose instead to use the more general term "coupled" without a further modifier. The coupling in question may in fact be optical, physical or otherwise, including combinations thereof, and Applicants are permitted to select such general claim terminology. The specification clearly shows a number of arrangements in which an optical fiber lasing medium is coupled between first and second reflective devices as claimed. See, for example, the arrangements shown in FIGS. 3, 4 and 5 of the drawings. The term "coupled" as used in claims 1 and 12 is intended to include these types of coupling arrangements as well as other types of coupling arrangements that those skilled in the art would recognize as being suitable for use in coupling an optical fiber lasing medium between first and second reflective devices. The §112 rejection is therefore believed to be improper and should be withdrawn.

Independent claims 1 and 12 stand rejected under 35 U.S.C. §102(a) as being anticipated by U.S. Patent No. 6,363,088 (hereinafter "Alphonse").

In response, Applicants have amended claims 1 and 12 in order to clarify the subject matter which Applicants regard as the invention. More specifically, Applicants have amended claims 1 and 12 to clarify that in the claimed invention multi-mode pump light is coupled into a cladding pumped optical fiber lasing medium using a combiner which comprises a tapered fiber bundle. In this type of arrangement, coupling of the ^{Multi Mode} multi-mode pump light is based on mode rather than on wavelength as in a conventional wavelength division multiplexing (WDM) coupler. Support for the amendment can be found in the specification at, for example, page 6, lines 26-29.

A number of advantages of the claimed arrangements are described at page 6, line 29 to page 7, line 2 as follows:

The use of a tapered fiber bundle in a cladding pumped laser has numerous advantages over conventional bundling and bulk optics. For example, no polishing or antireflection coating is required, there is no alignment of bulk optical system to be maintained, and losses are lower. In addition, as the fiber bundle is heated during the tapering process, surface tension forms the bundle into one fiber, circular or nearly circular in cross-section, thereby eliminating any wasted interstitial space.

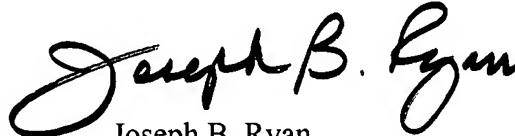
The present invention as set forth in claims 1 and 12 thus provides significant improvements over conventional arrangements such as those described in Alphonse and the other art of record.

Applicants submit that Alphonse fails to teach or suggest the limitations of claims 1 and 12 as amended. For example, Alphonse does not relate to a cladding pumped fiber laser, and does not teach or suggest the claimed utilization of a tapered fiber bundle to provide mode-based coupling of light from a multi-mode pump source into the laser cavity.

Since the amendments made herein are responsive to points first raised by the Examiner in the final Office Action, the amendments are timely and therefore should be entered in accordance with 37 C.F.R. §1.116(c).

In view of the above, Applicants believe that claims 1, 3, 5-8, 11, 12, 14, 16 and 17 as amended are in condition for allowance, and respectfully request the withdrawal of the §112 and §102(a) rejections.

Respectfully submitted,

A handwritten signature in black ink that reads "Joseph B. Ryan". The signature is fluid and cursive, with the first name "Joseph" and last name "Ryan" clearly legible.

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